



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

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RESOURCES AND ECONOMIC
DEVELOPMENT DIVISION

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APR 11 1975

The Honorable James E. Dow
Acting Administrator, Federal
Aviation Administration
Department of Transportation

Dear Mr. Dow:

We have surveyed the Federal Aviation Administration's (FAA) regulation of and surveillance over alterations to light aircraft. We made our survey at various locations in FAA's Southwest Region, at the Aeronautical Center in Oklahoma City, Oklahoma, and at FAA headquarters.

As you know, light aircraft used by the public must conform to FAA standards of construction and performance by having an FAA approved type design. Subsequent alteration to an individual aircraft requires an inspection to insure that the alteration is compatible with all previous alterations to the aircraft and does not adversely affect its airworthiness.

Our survey indicated that FAA could better assure that alterations to light aircraft are compatible with the aircraft's prior alterations by improving the bases on which compatibility determinations are made. Our survey also indicated that FAA's monitoring of designated engineering representatives could be improved. Designated engineering representatives (DERs) are private engineers designated by FAA and used by aircraft owners to evaluate and approve the engineering of aircraft alterations as FAA representatives.

NEED FOR BETTER COMPATIBILITY
DETERMINATIONS

The Chairman of the National Transportation Safety Board, in testimony before the Subcommittee on Government Activities, House Committee on Government Operations in June 1973 noted that the basic safety afforded by the original type certification process may be derogated when a number of FAA approved alterations are made to an aircraft. The Chairman further noted that the Board was of the opinion "that compatibility of multiple modifications to a basic aircraft must be demonstrated to insure the continued integrity of the aircraft as an airworthy system." FAA told the Board that inadequate compatibility determinations were not widespread and had caused a safety problem only in one accident.

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Our survey indicated that private aircraft mechanics, authorized by FAA to inspect and approve alterations to individual aircraft, do not always have complete information on what alterations have been made to the aircraft or their effects on its airworthiness.

Information on what alterations have been made to an aircraft would normally be obtained from the aircraft records (logbook) maintained by the aircraft owner, but the most frequent violation of FAA maintenance requirements is the failure to keep proper records. Also, engineering information on FAA approved alterations is maintained in the FAA regional office approving the alteration, which usually would not be readily accessible to the mechanic.

We contacted a few mechanics authorized to inspect alterations in the Southwest Region regarding their procedures for evaluating compatibility of multiple alterations. Most of them rely on aircraft logbooks and/or physical inspections of the aircraft to make this evaluation, but one indicated that he did not evaluate the alteration's compatibility with previous alterations.

We believe that FAA should look into this matter further to determine whether mechanics inspecting alterations to light aircraft (1) have adequate bases for evaluating alterations' compatibility with previous alterations and (2) make the required compatibility determinations in all cases.

SUPERVISION OF DESIGNATED ENGINEERING REPRESENTATIVES

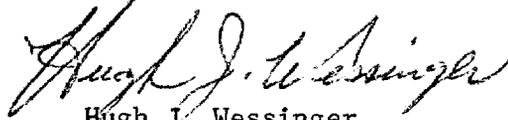
FAA guidelines to field offices for the supervision or review of activities of DERs provide that DERs are to be contacted as necessary to assure that they are adequately informed about FAA requirements and are properly accomplishing the assigned duties.

In the Southwest Region, FAA field offices monitored the activities of DERs primarily by spot-checking DER data submitted to them. One office spot checked 3 percent of DER submissions while another office spot checked 94 percent. One office kept no records of spot checks being made or whether the DER data was satisfactory.

To assure that DER activities are conducted in conformity with FAA directives we believe that FAA should establish criteria as to the extent that data submitted by DERs should be reviewed and the type of review records that should be maintained.

We appreciate the courtesy and cooperation extended to our representatives during the survey. Because of our continuing interest in the area of aviation safety, we would appreciate being informed of the action you take on these matters.

Sincerely yours,

A handwritten signature in cursive script, reading "Hugh J. Wessinger". The signature is written in dark ink and is positioned above the printed name and title.

Hugh J. Wessinger
Associate Director